

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of: J. Don Chen

Serial No.: N/A

Filed: Herewith

For: *NOVEL NUCLEAR RECEPTOR
COREPRESSOR MOLECULES AND USES
THEREFOR*

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Group Art Unit: Unassigned

Examiner: Unassigned

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Commissioner for Patents
Washington, D.C. 20231

**TRANSMITTAL LETTER FOR DISKETTE CONTAINING SEQUENCE
LISTING**

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Viriato G. Cardoso
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Viriato G. Cardoso

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LAHIVE & COCKFIELD, LLP
Attorneys at Law

By *Peter C. Lauro*
Peter C. Lauro, Esq.
Reg. No. 32,360
28 State Street
Boston, MA 02109
Telephone: 617-227-7400
Facsimile: 617-742-4214

SEQUENCE LISTING

<110> Chen, Don J.

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AND USES THEREFOR

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Pro Leu Asp Val Met Ala Asp Ala Arg Ala Leu Glu Arg Ala Cys Tyr	
1480 1485 1490	
gag gag agc ctg aag agc cgg cca ggg acc gcc agc agc tcg ggg ggc	4686
Glu Glu Ser Leu Lys Ser Arg Pro Gly Thr Ala Ser Ser Ser Gly Gly	
1495 1500 1505 1510	
tcc att gcg cgc ggc gcc ccg gtc att gtg cct gag ctg ggt aag ccg	4734
Ser Ile Ala Arg Gly Ala Pro Val Ile Val Pro Glu Leu Gly Lys Pro	
1515 1520 1525	
cgg cag agc ccc ctg acc tat gag gac cac ggg gca ccc ttt gcc ggc	4782
Arg Gln Ser Pro Leu Thr Tyr Glu Asp His Gly Ala Pro Phe Ala Gly	
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cac ctc cca cga ggt tcg ccc gtg acc atg cgg gag ccc acg ccg cgc	4830
His Leu Pro Arg Gly Ser Pro Val Thr Met Arg Glu Pro Thr Pro Arg	
1545 1550 1555	
ctg cag gag ggc agc ctt tcg tcc agc aag gca tcc cag gac cga aag	4878
Leu Gln Glu Gly Ser Leu Ser Ser Ser Lys Ala Ser Gln Asp Arg Lys	

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[illegible]

ccc atc tgg aga cct ggt aca gag cag agc agc ggc agc agc ggc agc Pro Ile Trp Arg Pro Gly Thr Glu Gln Ser Ser Gly Ser Ser Gly Ser 1815 1820 1825 1830	5646
agc ggc ggg ggt ggg ggc agc agc agc cgc ccc gcc tcc cac tcc cat Ser Gly Gly Gly Ser Ser Ser Arg Pro Ala Ser His Ser His 1835 1840 1845	5694
gcc cac cag cac tcg ccc atc tcc cct cgg acc cag gat gcc ctc cag Ala His Gln His Ser Pro Ile Ser Pro Arg Thr Gln Asp Ala Leu Gln 1850 1855 1860	5742
cag aga ccc agt gtg ctt cac aac aca ggc atg aag ggt atc atc acc Gln Arg Pro Ser Val Leu His Asn Thr Gly Met Lys Gly Ile Ile Thr 1865 1870 1875	5790
gct gtg gag ccc agc aag ccc acg gtc ctg agg tcc acc tcc acc tcc Ala Val Glu Pro Ser Lys Pro Thr Val Leu Arg Ser Thr Ser Thr Ser 1880 1885 1890	5838
tca ccc gtt cgc cca gct gcc aca ttc cca cct gcc acc cac tgc cca Ser Pro Val Arg Pro Ala Ala Thr Phe Pro Pro Ala Thr His Cys Pro 1895 1900 1905 1910	5886
ctg ggc ggc acc ctc gat ggg gtc tac cct acc ctc atg gag ccc gtc Leu Gly Gly Thr Leu Asp Gly Val Tyr Pro Thr Leu Met Glu Pro Val 1915 1920 1925	5934
ttg ctg ccc aag gag gcc ccc cgg gtc gcc cgg cca gag cgg ccc cga Leu Leu Pro Lys Glu Ala Pro Arg Val Ala Arg Pro Glu Arg Pro Arg 1930 1935 1940	5982
gca gac acc ggc cat gcc ttc ctc gcc aag ccc cca gcc cgc tcc ggg Ala Asp Thr Gly His Ala Phe Leu Ala Lys Pro Pro Ala Arg Ser Gly 1945 1950 1955	6030
ctg gag ccc gcc tcc tcc ccc agc aag ggc tcg gag ccc cgg ccc cta Leu Glu Pro Ala Ser Ser Pro Ser Lys Gly Ser Glu Pro Arg Pro Leu 1960 1965 1970	6078
gtg cct cct gtc tct ggc cac gcc acc atc gcc cgc acc cct gcg aag Val Pro Pro Val Ser Gly His Ala Thr Ile Ala Arg Thr Pro Ala Lys 1975 1980 1985 1990	6126
aac ctc gca cct cac cac gcc agc ccg gac ccg ccg gcg cca cct gcc Asn Leu Ala Pro His His Ala Ser Pro Asp Pro Pro Ala Pro Pro Ala 1995 2000 2005	6174
tcg gcc tcg gac ccg cac cgg gaa aag act caa agt aaa ccc ttt tcc Ser Ala Ser Asp Pro His Arg Glu Lys Thr Gln Ser Lys Pro Phe Ser 2010 2015 2020	6222
atc cag gaa ctg gaa ctc cgt tct ctg ggt tac cac ggc agc agc tac Ile Gln Glu Leu Glu Leu Arg Ser Leu Gly Tyr His Gly Ser Ser Tyr 2025 2030 2035	6270
agc ccc gaa ggg gtg gag ccc gtc agc cct gtg agc tca ccc agt ctg Ser Pro Glu Gly Val Glu Pro Val Ser Pro Val Ser Ser Pro Ser Leu 2040 2045 2050	6318

Asn Ile Ser Gln Pro Gly Thr Glu Ile Phe Asn Met Pro Ala Ile Thr				
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gga aca ggc ctt atg acc tat aga agc cag gcg gtg cag gaa cat gcc				7134
Gly Thr Gly Leu Met Thr Tyr Arg Ser Gln Ala Val Gln Glu His Ala				
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agc acc aac atg ggg ctg gag gcc ata att aga aag gca ctc atg ggt				7182
Ser Thr Asn Met Gly Leu Glu Ala Ile Ile Arg Lys Ala Leu Met Gly				
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aaa tat gac cag tgg gaa gag tcc ccg ccg ctc agc gcc aat gct ttt				7230
Lys Tyr Asp Gln Trp Glu Glu Ser Pro Pro Leu Ser Ala Asn Ala Phe				
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aac cct ctg aat gcc agt gcc agc ctg ccc gct gct atg ccc ata acc				7278
Asn Pro Leu Asn Ala Ser Ala Ser Leu Pro Ala Ala Met Pro Ile Thr				
	2360	2365	2370	
gct gct gac gga cgg agt gac cac aca ctc acc tcg cca ggt ggc ggc				7326
Ala Ala Asp Gly Arg Ser Asp His Thr Leu Thr Ser Pro Gly Gly Gly				
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ggg aag gcc aag gtc tct ggc aga ccc agc agc cga aaa gcc aag tcc				7374
Gly Lys Ala Lys Val Ser Gly Arg Pro Ser Ser Arg Lys Ala Lys Ser				
	2395	2400	2405	
ccg gcc ccg ggc ctg gca tct ggg gac cgg cca ccc tct gtc tcc tca				7422
Pro Ala Pro Gly Leu Ala Ser Gly Asp Arg Pro Pro Ser Val Ser Ser				
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gtg cac tcg gag gga gac tgc aac cgc cgg acg ccg ctc acc aac cgc				7470
Val His Ser Glu Gly Asp Cys Asn Arg Arg Thr Pro Leu Thr Asn Arg				
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gtg tgg gag gac agg ccc tcg tcc gca ggt tcc acg cca ttc ccc tac				7518
Val Trp Glu Asp Arg Pro Ser Ser Ala Gly Ser Thr Pro Phe Pro Tyr				
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aac ccc ctg atc atg cgg ctg cag gcg ggt gtc atg gct tcc cca ccc				7566
Asn Pro Leu Ile Met Arg Leu Gln Ala Gly Val Met Ala Ser Pro Pro				
	2455	2460	2465	
cca ccg ggc ctc ccc gcg ggc agc ggg ccc ctc gct ggc ccc cac cac				7614
Pro Pro Gly Leu Pro Ala Gly Ser Gly Pro Leu Ala Gly Pro His His				
	2475	2480	2485	
gcc tgg gac gag gag ccc aag cca ctg ctc tgc tcg cag tac gag aca				7662
Ala Trp Asp Glu Glu Pro Lys Pro Leu Leu Cys Ser Gln Tyr Glu Thr				
	2490	2495	2500	
ctc tcc gac agc gag tgactcagaa cagggcgggg gggggcgggc ggtgtcaggt				7717
Leu Ser Asp Ser Glu				
	2505			
cccagcgagc cacaggaacg gccctgcagg agcggggcgcg ctgccgactc ccccaaccaa				7777
ggaaggagcc cctgagtcgg cctgcgcctc catccatctg tccgtccaga gccggcatcc				7837
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<212> PRT
<213> Homo sapiens

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Pro Arg Tyr Pro Pro His Ser Leu Ser Tyr Pro Val Gln Ile Ala Arg
          20                      25              30

Thr His Thr Asp Val Gly Leu Leu Glu Tyr Gln His His Ser Arg Asp
      35                      40              45

Tyr Ala Ser His Leu Ser Pro Gly Ser Ile Ile Gln Pro Gln Arg Arg
      50                      55              60

Arg Pro Ser Leu Leu Ser Glu Phe Gln Pro Gly Asn Glu Arg Ser Gln
  65                      70              75              80

Glu Leu His Leu Arg Pro Glu Ser His Ser Tyr Leu Pro Glu Leu Gly
          85                      90              95

Lys Ser Glu Met Glu Phe Ile Glu Ser Lys Arg Pro Arg Leu Glu Leu
      100                      105              110

Leu Pro Asp Pro Leu Leu Arg Pro Ser Pro Leu Leu Ala Thr Gly Gln
      115                      120              125

Pro Ala Gly Ser Glu Asp Leu Thr Lys Asp Arg Ser Leu Thr Gly Lys
      130                      135              140

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Leu	Glu	Pro	Val	Ser	Pro	Pro	Ser	Pro	Pro	His	Thr	Asp	Pro	Glu	Leu	145	150	155	160
Glu	Leu	Val	Pro	Pro	Arg	Leu	Ser	Lys	Glu	Glu	Leu	Ile	Gln	Asn	Met	165	170	175	
Asp	Arg	Val	Asp	Arg	Glu	Ile	Thr	Met	Val	Glu	Gln	Gln	Ile	Ser	Lys	180	185	190	
Leu	Lys	Lys	Lys	Gln	Gln	Gln	Leu	Glu	Glu	Glu	Ala	Ala	Lys	Pro	Pro	195	200	205	
Glu	Pro	Glu	Lys	Pro	Val	Ser	Pro	Pro	Pro	Ile	Glu	Ser	Lys	His	Arg	210	215	220	
Ser	Leu	Val	Gln	Ile	Ile	Tyr	Asp	Glu	Asn	Arg	Lys	Lys	Ala	Glu	Ala	225	230	235	240
Ala	His	Arg	Ile	Leu	Glu	Gly	Leu	Gly	Pro	Gln	Val	Glu	Leu	Pro	Leu	245	250	255	
Tyr	Asn	Gln	Pro	Ser	Asp	Thr	Arg	Gln	Tyr	His	Glu	Asn	Ile	Lys	Ile	260	265	270	
Asn	Gln	Ala	Met	Arg	Lys	Lys	Leu	Ile	Leu	Tyr	Phe	Lys	Arg	Arg	Asn	275	280	285	
His	Ala	Arg	Lys	Gln	Trp	Glu	Gln	Lys	Phe	Cys	Gln	Arg	Tyr	Asp	Gln	290	295	300	
Leu	Met	Glu	Ala	Trp	Glu	Lys	Lys	Val	Glu	Arg	Ile	Glu	Asn	Asn	Pro	305	310	315	320
Arg	Arg	Arg	Ala	Lys	Glu	Ser	Lys	Val	Arg	Glu	Tyr	Tyr	Glu	Lys	Gln	325	330	335	
Phe	Pro	Glu	Ile	Arg	Lys	Gln	Arg	Glu	Leu	Gln	Glu	Arg	Met	Gln	Arg	340	345	350	
Val	Gly	Gln	Arg	Gly	Ser	Gly	Leu	Ser	Met	Ser	Pro	Ala	Arg	Ser	Glu	355	360	365	
His	Glu	Val	Ser	Glu	Ile	Ile	Asp	Gly	Leu	Ser	Glu	Gln	Glu	Asn	Leu	370	375	380	
Glu	Lys	Gln	Met	Arg	Gln	Leu	Ala	Val	Ile	Pro	Pro	Met	Leu	Tyr	Asp	385	390	395	400
Ala	Asp	Gln	Gln	Arg	Ile	Lys	Phe	Ile	Asn	Met	Asn	Gly	Leu	Met	Ala	405	410	415	
Asp	Pro	Met	Lys	Val	Tyr	Lys	Asp	Arg	Gln	Val	Met	Asn	Met	Trp	Ser	420	425	430	
Glu	Gln	Glu	Lys	Glu	Thr	Phe	Arg	Glu	Lys	Phe	Met	Gln	His	Pro	Lys	435	440	445	
Asn	Phe	Gly	Leu	Ile	Ala	Ser	Phe	Leu	Glu	Arg	Lys	Thr	Val	Ala	Glu	450	455	460	

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Cys	Val	Leu	Tyr	Tyr	Tyr	Leu	Thr	Lys	Lys	Asn	Glu	Asn	Tyr	Lys	Ser	465	470	475	480
Leu	Val	Arg	Arg	Ser	Tyr	Arg	Arg	Arg	Gly	Lys	Ser	Gln	Gln	Gln	Gln	485	490	495	
Gln	Gln	Gln	Gln	Gln	Gln	Gln	Gln	Gln	Gln	Gln	Gln	Gln	Pro	Met	Pro	500	505	510	
Arg	Ser	Ser	Gln	Glu	Glu	Lys	Asp	Glu	Lys	Glu	Lys	Glu	Lys	Glu	Ala	515	520	525	
Glu	Lys	Glu	Glu	Glu	Lys	Pro	Glu	Val	Glu	Asn	Asp	Lys	Glu	Asp	Leu	530	535	540	
Leu	Lys	Glu	Lys	Thr	Asp	Asp	Thr	Ser	Gly	Glu	Asp	Asn	Asp	Glu	Lys	545	550	555	560
Glu	Ala	Val	Ala	Ser	Lys	Gly	Arg	Lys	Thr	Ala	Asn	Ser	Gln	Gly	Arg	565	570	575	
Arg	Lys	Gly	Arg	Ile	Thr	Arg	Ser	Met	Ala	Asn	Glu	Ala	Asn	Ser	Glu	580	585	590	
Glu	Ala	Ile	Thr	Pro	Gln	Gln	Ser	Ala	Glu	Leu	Ala	Ser	Met	Glu	Leu	595	600	605	
Asn	Glu	Ser	Ser	Arg	Trp	Thr	Glu	Glu	Glu	Met	Glu	Thr	Ala	Lys	Lys	610	615	620	
Gly	Leu	Leu	Glu	His	Gly	Arg	Asn	Trp	Ser	Ala	Ile	Ala	Arg	Met	Val	625	630	635	640
Gly	Ser	Lys	Thr	Val	Ser	Gln	Cys	Lys	Asn	Phe	Tyr	Phe	Asn	Tyr	Lys	645	650	655	
Lys	Arg	Gln	Asn	Leu	Asp	Glu	Ile	Leu	Gln	Gln	His	Lys	Leu	Lys	Met	660	665	670	
Glu	Lys	Glu	Arg	Asn	Ala	Arg	Arg	Lys	Lys	Lys	Lys	Ala	Pro	Ala	Ala	675	680	685	
Ala	Ser	Glu	Glu	Ala	Ala	Phe	Pro	Pro	Val	Val	Glu	Asp	Glu	Glu	Met	690	695	700	
Glu	Ala	Ser	Gly	Val	Thr	Gly	Asn	Glu	Glu	Glu	Met	Val	Glu	Glu	Ala	705	710	715	720
Glu	Ala	Thr	Val	Asn	Asn	Ser	Ser	Asp	Thr	Glu	Ser	Ile	Pro	Ser	Pro	725	730	735	
His	Thr	Glu	Ala	Ala	Lys	Asp	Thr	Gly	Gln	Asn	Gly	Pro	Lys	Pro	Pro	740	745	750	
Ala	Thr	Leu	Gly	Ala	Asp	Gly	Pro	Pro	Pro	Gly	Pro	Pro	Thr	Pro	Pro	755	760	765	
Pro	Glu	Asp	Ile	Pro	Ala	Pro	Thr	Glu	Ser	Thr	Pro	Ala	Ser	Glu	Ala	770	775	780	
Thr	Leu	Ala	Pro	Thr	Pro	Pro	Pro	Ala	Pro	Pro	Phe	Pro	Ser	Ser	Pro				

102200:102200

785		790		795		800
Pro Pro Val Val	Pro Lys Glu Glu Lys	Glu Glu Glu Thr	Ala Ala Ala			
	805		810		815	
Pro Pro Val Glu	Glu Gly Glu Glu Gln	Lys Pro Pro Ala	Ala Glu Glu			
	820		825		830	
Leu Ala Val Asp	Thr Gly Lys Ala Glu	Glu Glu Pro Val	Lys Ser Glu Cys			
	835		840		845	
Thr Glu Glu Ala	Glu Glu Gly Pro Ala	Lys Gly Lys Asp	Ala Glu Ala			
	850		855		860	
Ala Glu Ala Thr	Ala Glu Arg Ala Leu	Lys Ala Glu Lys	Lys Glu Gly			
	865		870		875	
Gly Ser Gly Arg	Ala Thr Thr Ala Lys	Ser Ser Gly Ala	Pro Gln Asp			
	885		890		895	
Ser Asp Ser Ser	Ala Thr Cys Ser Ala	Asp Glu Val Asp	Glu Ala Glu			
	900		905		910	
Gly Gly Asp Lys	Asn Arg Leu Leu Ser	Pro Arg Pro Ser	Leu Leu Thr			
	915		920		925	
Pro Thr Gly Asp	Pro Arg Ala Asn Ala	Ser Pro Gln Lys	Pro Leu Asp			
	930		935		940	
Leu Lys Gln Leu	Lys Gln Arg Ala Ala	Ala Ile Pro Pro	Ile Gln Val			
	945		950		955	
Thr Lys Val His	Glu Pro Pro Arg	Glu Asp Ala Ala	Pro Thr Lys			
	965		970		975	
Ala Pro Pro Ala	Pro Pro Pro Pro	Gln Asn Leu Gln	Pro Glu Ser			
	980		985		990	
Ala Pro Gln Gln	Pro Gly Ser Ser	Pro Arg Gly Lys	Ser Arg Ser			
	995		1000		1005	
Ala Pro Pro Ala	Asp Lys Glu Ala	Glu Lys Pro Val	Phe Phe Pro			
	1010		1015		1020	
Phe Ala Ala Glu	Ala Gln Lys Leu	Pro Gly Asp Pro	Pro Cys Trp			
	1025		1030		1035	
Ser Gly Leu Pro	Phe Pro Val Pro	Pro Arg Glu Val	Ile Lys Ala			
	1045		1050		1055	
Pro His Ala Pro	Asp Pro Ser Ala	Phe Ser Tyr Ala	Pro Pro Gly			
	1060		1065		1070	
Pro Leu Pro Leu	Gly Leu His Asp	Thr Ala Arg Pro	Val Leu Pro			
	1075		1080		1085	
Pro Pro Thr Ile	Ser Asn Pro Pro	Pro Leu Ile Ser	Ser Ala Lys			
	1090		1095		1100	
Pro Ser Val Leu	Glu Arg Gln Ile	Gly Ala Ile Ser	Gln Gly Met			
	1105		1110		1115	
					1120	

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Val Gln Leu His Val Pro Tyr Ser Glu His Ala Lys Ala Pro Val Gly
1125 1130 1135

Pro Val Thr Met Gly Leu Pro Leu Pro Met Asp Pro Lys Lys Leu Ala
1140 1145 1150

Pro Phe Ser Gly Val Lys Gln Glu Gln Leu Ser Pro Arg Gly Gln Ala
1155 1160 1165

Gly Pro Pro Glu Ser Leu Gly Val Pro Thr Ala Gln Glu Ala Ser Val
1170 1175 1180

Leu Arg Gly Thr Ala Leu Gly Ser Val Pro Gly Gly Ser Ile Thr Lys
1185 1190 1195 1200

Gly Ile Pro Ser Thr Arg Val Pro Ser Asp Ser Ala Ile Thr Tyr Arg
1205 1210 1215

Gly Ser Ile Thr His Gly Thr Pro Ala Asp Val Leu Tyr Lys Gly Thr
1220 1225 1230

Ile Thr Arg Ile Ile Gly Glu Asp Ser Pro Ser Arg Leu Asp Arg Gly
1235 1240 1245

Arg Glu Asp Ser Leu Pro Lys Gly His Val Ile Tyr Glu Gly Lys Lys
1250 1255 1260

Gly His Val Leu Ser Tyr Glu Gly Gly Met Ser Val Thr Gln Cys Ser
1265 1270 1275 1280

Lys Glu Asp Gly Arg Ser Ser Ser Gly Pro Pro His Glu Thr Ala Ala
1285 1290 1295

Pro Lys Arg Thr Tyr Asp Met Met Glu Gly Arg Val Gly Arg Ala Ile
1300 1305 1310

Ser Ser Ala Ser Ile Glu Gly Leu Met Gly Arg Ala Ile Pro Pro Glu
1315 1320 1325

Arg His Ser Pro His His Leu Lys Glu Gln His His Ile Arg Gly Ser
1330 1335 1340

Ile Thr Gln Gly Ile Pro Arg Ser Tyr Val Glu Ala Gln Glu Asp Tyr
1345 1350 1355 1360

Leu Arg Arg Glu Ala Lys Leu Leu Lys Arg Glu Gly Thr Pro Pro Pro
1365 1370 1375

Pro Pro Pro Ser Arg Asp Leu Thr Glu Ala Tyr Lys Thr Gln Ala Leu
1380 1385 1390

Gly Pro Leu Lys Leu Lys Pro Ala His Glu Gly Leu Val Ala Thr Val
1395 1400 1405

Lys Glu Ala Gly Arg Ser Ile His Glu Ile Pro Arg Glu Glu Leu Arg
1410 1415 1420

His Thr Pro Glu Leu Pro Leu Ala Pro Arg Pro Leu Lys Glu Gly Ser
1425 1430 1435 1440

102220 102220 102220

Ile Thr Gln Gly Thr Pro Leu Lys Tyr Asp Thr Gly Ala Ser Thr Thr
1445 1450 1455

Gly Ser Lys Lys His Asp Val Arg Ser Leu Ile Gly Ser Pro Gly Arg
1460 1465 1470

Thr Phe Pro Pro Val His Pro Leu Asp Val Met Ala Asp Ala Arg Ala
1475 1480 1485

Leu Glu Arg Ala Cys Tyr Glu Glu Ser Leu Lys Ser Arg Pro Gly Thr
1490 1495 1500

Ala Ser Ser Ser Gly Gly Ser Ile Ala Arg Gly Ala Pro Val Ile Val
505 1510 1515 1520

Pro Glu Leu Gly Lys Pro Arg Gln Ser Pro Leu Thr Tyr Glu Asp His
1525 1530 1535

Gly Ala Pro Phe Ala Gly His Leu Pro Arg Gly Ser Pro Val Thr Met
1540 1545 1550

Arg Glu Pro Thr Pro Arg Leu Gln Glu Gly Ser Leu Ser Ser Ser Lys
1555 1560 1565

Ala Ser Gln Asp Arg Lys Leu Thr Ser Thr Pro Arg Glu Ile Ala Lys
1570 1575 1580

Ser Pro His Ser Thr Val Pro Glu His His Pro His Pro Ile Ser Pro
585 1590 1595 1600

Tyr Glu His Leu Leu Arg Gly Val Ser Gly Val Asp Leu Tyr Arg Ser
1605 1610 1615

His Ile Pro Leu Ala Phe Asp Pro Thr Ser Ile Pro Arg Gly Ile Pro
1620 1625 1630

Leu Asp Ala Ala Ala Ala Tyr Tyr Leu Pro Arg His Leu Ala Pro Asn
1635 1640 1645

Pro Thr Tyr Pro His Leu Tyr Pro Pro Tyr Leu Ile Arg Gly Tyr Pro
1650 1655 1660

Asp Thr Ala Ala Leu Glu Asn Arg Gln Thr Ile Ile Asn Asp Tyr Ile
665 1670 1675 1680

Thr Ser Gln Gln Met His His Asn Thr Ala Thr Ala Met Ala Gln Arg
1685 1690 1695

Ala Asp Met Leu Arg Gly Leu Ser Pro Arg Glu Ser Ser Leu Ala Leu
1700 1705 1710

Asn Tyr Ala Ala Gly Pro Arg Gly Ile Ile Asp Leu Ser Gln Val Pro
1715 1720 1725

His Leu Pro Val Leu Val Pro Pro Thr Pro Gly Thr Pro Ala Thr Ala
1730 1735 1740

Met Asp Arg Leu Ala Tyr Leu Pro Thr Ala Pro Gln Pro Phe Ser Ser
745 1750 1755 1760

Arg His Ser Ser Ser Pro Leu Ser Pro Gly Gly Pro Thr His Leu Thr

1445-1455-1460-1470-1475-1480-1485-1490-1495-1500-1505-1510-1515-1520-1525-1530-1535-1540-1545-1550-1555-1560-1565-1570-1575-1580-1585-1590-1595-1600-1605-1610-1615-1620-1625-1630-1635-1640-1645-1650-1655-1660-1665-1670-1675-1680-1685-1690-1695-1700-1705-1710-1715-1720-1725-1730-1735-1740-1745-1750-1755-1760

Lys	Pro	Thr	Thr	Thr	Ser	Ser	Ser	Glu	Arg	Glu	Arg	Asp	Arg	Asp	Arg
1780						1785						1790			
Glu	Arg	Asp	Arg	Asp	Arg	Glu	Arg	Glu	Lys	Ser	Ile	Leu	Thr	Ser	Thr
1795						1800						1805			
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1810						1815						1820			
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825			1830						1835			1840			
Pro	Ala	Ser	His	Ser	His	Ala	His	Gln	His	Ser	Pro	Ile	Ser	Pro	Arg
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1875						1880						1885			
Arg	Ser	Thr	Ser	Thr	Ser	Ser	Pro	Val	Arg	Pro	Ala	Ala	Thr	Phe	Pro
1890						1895			1900						
Pro	Ala	Thr	His	Cys	Pro	Leu	Gly	Gly	Thr	Leu	Asp	Gly	Val	Tyr	Pro
905			1910						1915			1920			
Thr	Leu	Met	Glu	Pro	Val	Leu	Leu	Pro	Lys	Glu	Ala	Pro	Arg	Val	Ala
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Arg	Pro	Glu	Arg	Pro	Arg	Ala	Asp	Thr	Gly	His	Ala	Phe	Leu	Ala	Lys
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Pro	Pro	Ala	Arg	Ser	Gly	Leu	Glu	Pro	Ala	Ser	Ser	Pro	Ser	Lys	Gly
1955						1960						1965			
Ser	Glu	Pro	Arg	Pro	Leu	Val	Pro	Pro	Val	Ser	Gly	His	Ala	Thr	Ile
1970						1975			1980						
Ala	Arg	Thr	Pro	Ala	Lys	Asn	Leu	Ala	Pro	His	His	Ala	Ser	Pro	Asp
985			1990						1995			2000			
Pro	Pro	Ala	Pro	Pro	Ala	Ser	Ala	Ser	Asp	Pro	His	Arg	Glu	Lys	Thr
			2005			2010						2015			
Gln	Ser	Lys	Pro	Phe	Ser	Ile	Gln	Glu	Leu	Glu	Leu	Arg	Ser	Leu	Gly
			2020			2025						2030			
Tyr	His	Gly	Ser	Ser	Tyr	Ser	Pro	Glu	Gly	Val	Glu	Pro	Val	Ser	Pro
2035						2040			2045						
Val	Ser	Ser	Pro	Ser	Leu	Thr	His	Asp	Lys	Gly	Leu	Pro	Lys	His	Leu
2050						2055			2060						
Glu	Glu	Leu	Asp	Lys	Ser	His	Leu	Glu	Gly	Glu	Leu	Arg	Pro	Lys	Gln
065			2070			2075						2080			
Pro	Gly	Pro	Val	Lys	Leu	Gly	Gly	Glu	Ala	Ala	His	Leu	Pro	His	Leu
			2085			2090						2095			

Arg	Pro	Leu	Pro	Glu	Ser	Gln	Pro	Ser	Ser	Pro	Leu	Gln	Thr		
			2100					2105					2110		
Ala	Pro	Gly	Val	Lys	Gly	His	Gln	Arg	Val	Val	Thr	Leu	Ala	Gln	His
		2115					2120					2125			
Ile	Ser	Glu	Val	Ile	Thr	Gln	Asp	Tyr	Thr	Arg	His	His	Pro	Gln	Gln
	2130					2135					2140				
Leu	Ser	Ala	Pro	Leu	Pro	Ala	Pro	Leu	Tyr	Ser	Phe	Pro	Gly	Ala	Ser
145					2150					2155					2160
Cys	Pro	Val	Leu	Asp	Leu	Arg	Arg	Pro	Pro	Ser	Asp	Leu	Tyr	Leu	Pro
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Pro	Pro	Asp	His	Gly	Ala	Pro	Ala	Arg	Gly	Ser	Pro	His	Ser	Glu	Gly
			2180					2185					2190		
Gly	Lys	Arg	Ser	Pro	Glu	Pro	Asn	Lys	Thr	Ser	Val	Leu	Gly	Gly	Gly
	2195						2200					2205			
Glu	Asp	Gly	Ile	Glu	Pro	Val	Ser	Pro	Pro	Glu	Gly	Met	Thr	Glu	Pro
	2210					2215					2220				
Gly	His	Ser	Arg	Ser	Ala	Val	Tyr	Pro	Leu	Leu	Tyr	Arg	Asp	Gly	Glu
225					2230					2235					2240
Gln	Thr	Glu	Pro	Ser	Arg	Met	Gly	Ser	Lys	Ser	Pro	Gly	Asn	Thr	Ser
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Ala	Val	Gln	Glu	His	Ala	Ser	Thr	Asn	Met	Gly	Leu	Glu	Ala	Ile	Ile
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		2355					2360					2365			
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Thr	Ser	Pro	Gly	Gly	Gly	Gly	Lys	Ala	Lys	Val	Ser	Gly	Arg	Pro	Ser
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Ser	Arg	Lys	Ala	Lys	Ser	Pro	Ala	Pro	Gly	Leu	Ala	Ser	Gly	Asp	Arg
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 Pro Arg Tyr Pro Pro His Ser Leu Ser Tyr Pro Val Gln Ile Ala Arg
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 Thr His Thr Asp Val Gly Leu Leu Glu Tyr Gln His His Ser Arg Asp
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 Tyr Ala Ser His Leu Ser Pro Gly Ser Ile Ile Gln Pro Gln Arg Arg
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 Arg Pro Ser Leu Leu Ser Glu Phe Gln Pro Gly Asn Glu Arg Ser Gln
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 Glu Leu His Leu Arg Pro Glu Ser His Ser Tyr Leu Pro Glu Leu Gly
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 Lys Ser Glu Met Glu Phe Ile Glu Ser Lys Arg Pro Arg Leu Glu Leu
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gct	gac	cag	cag	cgc	atc	aag	ttc	atc	aac	atg	aac	ggg	ctt	atg	gcc	1248	
Ala	Asp	Gln	Gln	Arg	Ile	Lys	Phe	Ile	Asn	Met	Asn	Gly	Leu	Met	Ala		
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gac	ccc	atg	aag	gtg	tac	aaa	gac	cgc	cag	gtc	atg	aac	atg	tgg	agt	1296	
Asp	Pro	Met	Lys	Val	Tyr	Lys	Asp	Arg	Gln	Val	Met	Asn	Met	Trp	Ser		
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Glu	Gln	Glu	Lys	Glu	Thr	Phe	Arg	Glu	Lys	Phe	Met	Gln	His	Pro	Lys		
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aac	ttt	ggc	ctg	atc	gca	tca	ttc	ctg	gag	agg	aag	aca	gtg	gct	gag	1392	
Asn	Phe	Gly	Leu	Ile	Ala	Ser	Phe	Leu	Glu	Arg	Lys	Thr	Val	Ala	Glu		
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tgc	gtc	ctc	tat	tac	tac	ctg	act	aag	aag	aat	gag	aac	tat	aag	agc	1440	
Cys	Val	Leu	Tyr	Tyr	Tyr	Leu	Thr	Lys	Lys	Asn	Glu	Asn	Tyr	Lys	Ser		
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Leu	Val	Arg	Arg	Ser	Tyr	Arg	Arg	Arg	Gly	Lys	Ser	Gln	Gln	Gln	Gln		
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Gln	Gln	Gln	Gln	Gln	Gln	Gln	Gln	Gln	Gln	Gln	Gln	Gln	Pro	Met	Pro		
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Arg	Ser	Ser	Gln	Glu	Glu	Lys	Asp	Glu	Lys	Glu	Lys	Glu	Lys	Glu	Ala		
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Glu	Lys	Glu	Glu	Glu	Lys	Pro	Glu	Val	Glu	Asn	Asp	Lys	Glu	Asp	Leu		
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ctc	aag	gag	aag	aca	gac	gac	acc	tca	ggg	gag	gac	aac	gac	gag	aag	1680	
Leu	Lys	Glu	Lys	Thr	Asp	Asp	Thr	Ser	Gly	Glu	Asp	Asn	Asp	Glu	Lys		
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Glu	Ala	Val	Ala	Ser	Lys	Gly	Arg	Lys	Thr	Ala	Asn	Ser	Gln	Gly	Arg		
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Arg	Lys	Gly	Arg	Ile	Thr	Arg	Ser	Met	Ala	Asn	Glu	Ala	Asn	Ser	Glu		
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Asn	Glu	Ser	Ser	Arg	Trp	Thr	Glu	Glu	Glu	Met	Glu	Thr	Ala	Lys	Lys		

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Gly Ala Pro Phe Ala Gly His Leu Pro Arg Gly Ser Pro Val Thr Met			
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Arg Glu Pro Thr Pro Arg Leu Gln Glu Gly Ser Leu Ser Ser Ser Lys			
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Ser Pro His Ser Thr Val Pro Glu His His Pro His Pro Ile Ser Pro			

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	1795										1800										1805																			
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gcc cca ggg gtc aaa ggt cac cag cgg gtg gtc acc ctg gcc cag cac Ala Pro Gly Val Lys Gly His Gln Arg Val Val Thr Leu Ala Gln His 2115 2120 2125	6384
atc agt gag gtc atc aca cag gac tac acc cgg cac cac cca cag cag Ile Ser Glu Val Ile Thr Gln Asp Tyr Thr Arg His His Pro Gln Gln 2130 2135 2140	6432
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Leu Ser Ala Asn Ala Phe Asn Pro Leu Asn Ala Ser Ala Ser Leu Pro	
2355 2360 2365	
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Ala Ala Met Pro Ile Thr Ala Ala Asp Gly Arg Ser Asp His Thr Leu	
2370 2375 2380	
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Thr Ser Pro Gly Gly Gly Lys Ala Lys Val Ser Gly Arg Pro Ser	
2385 2390 2395 2400	
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Ser Arg Lys Ala Lys Ser Pro Ala Pro Gly Leu Ala Ser Gly Asp Arg	
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Pro Pro Ser Val Ser Ser Val His Ser Glu Gly Asp Cys Asn Arg Arg	
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Leu Ala Gly Pro His His Ala Trp Asp Glu Glu Pro Lys Pro Leu Leu	
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Met Ser Gly Ser Thr																			
1 5																			
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Gln Pro Val Ala Gln Thr Trp Arg Ala Ala Glu Pro Arg Tyr Pro Pro																			
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His Gly Ile Ser Tyr Pro Val Gln Ile Ala Arg Ser His Thr Asp Val																			
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Gly Leu Leu Glu Tyr Gln His His Pro Arg Asp Tyr Thr Ser His Leu																			
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Ser Pro Gly Ser Ile Ile Gln Pro Gln Arg Arg Arg Pro Ser Leu Leu																			
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Pro Glu Ser Arg Thr Phe Leu Pro Glu Leu Gly Lys Pro Asp Ile Glu																			
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Phe Thr Glu Ser Lys Arg Pro Arg Leu Glu Leu Leu Pro Asp Thr Leu																			
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Leu Arg Pro Ser Pro Leu Leu Ala Thr Gly Gln Pro Ser Gly Ser Glu																			
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Asp Leu Thr Lys Asp Arg Ser Leu Ala Gly Lys Leu Glu Pro Val Ser																			
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Pro Val Ser Pro Pro Pro Ile Glu Ser Lys His Arg Ser Leu Val Gln																			
215					220					225									
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Ile 230	Ile	Tyr	Asp	Glu	Asn 235	Arg	Lys	Lys	Ala	Glu 240	Ala	Ala	His	Arg	Ile 245	
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tct Ser	gac Asp	aca Thr	cgc Arg 265	cag Gln	tac Tyr	cat His	gaa Glu	aac Asn 270	atc Ile	aaa Lys	ata Ile	aac Asn	cag Gln 275	gcg Ala	atg Met	990
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cgc Arg	aag Lys	cag Gln	cgg Glu 345	gag Glu	ctg Leu	cag Gln	gag Glu	cgc Arg 350	atg Met	cag Gln	agc Ser	agg Arg 355	gtg Val	ggc Gly	cag Gln	1230
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Ser Tyr Arg Arg Arg Gly Lys Ser Gln Gln Gln Gln Gln Gln Gln Gln	490	495	500	
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Gln Gln Gln Gln Gln Gln Met Ala Arg Ser Ser Gln Glu Glu Lys Glu	505	510	515	
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Glu Lys Glu Lys Glu Lys Glu Ala Asp Lys Glu Glu Glu Lys Gln Asp	520	525	530	
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Ala Glu Asn Glu Lys Glu Glu Leu Ser Lys Glu Lys Thr Asp Asp Thr	535	540	545	
tct gcc gag gac aac gat gag aaa gag gcc gtg gcc tcc aaa gcc cgc				1854
Ser Gly Glu Asp Asn Asp Glu Lys Glu Ala Val Ala Ser Lys Gly Arg	550	555	560	565
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Lys Thr Ala Asn Ser Gln Gly Arg Arg Lys Gly Arg Ile Thr Arg Ser	570	575	580	
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Met Ala Asn Glu Ala Asn His Glu Glu Thr Ala Thr Pro Gln Gln Ser	585	590	595	
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Ser Glu Leu Ala Ser Met Glu Met Asn Glu Ser Ser Arg Trp Thr Glu	600	605	610	
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Glu Glu Met Glu Thr Ala Lys Lys Gly Leu Leu Glu His Gly Arg Asn	615	620	625	
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Trp Ser Ala Ile Ala Arg Met Val Gly Ser Lys Thr Val Ser Gln Cys	630	635	640	645
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Lys Asn Phe Tyr Phe Asn Tyr Lys Lys Arg Gln Asn Leu Asp Glu Ile	650	655	660	
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Leu Gln Gln His Lys Leu Lys Met Glu Lys Glu Arg Asn Ala Arg Arg	665	670	675	
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Lys Lys Lys Lys Thr Pro Ala Ala Ala Ser Glu Glu Thr Ala Phe Pro	680	685	690	
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Pro Ala Ala Glu Asp Glu Glu Met Glu Ala Ser Gly Ala Ser Ala Asn	695	700	705	
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Glu Glu Glu Leu Ala Glu Glu Ala Glu Ala Ser Gln Ala Ser Gly Asn	710	715	720	725

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cag Gln 775	cca Pro	cct Pro	gtt Val	cct Pro	cct Pro	cca Pro 780	gaa Glu	gaa Glu	ccg Pro	gca Ala	gca Ala 785	gcc Ala	cct Pro	gct Ala	gag Glu			2526
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1080 1085 1090	
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1270 1275 1280 1285	
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1290 1295 1300	
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Gly	Ala	Pro	Phe	Thr	Ser	His	Leu	Pro	Arg	Gly	Ser	Pro	Val	Thr	Thr															
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Ser	Pro	His	Ser	Thr	Val	Pro	Glu	His	His	Pro	His	Pro	Ile	Ser	Pro															
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Tyr	Glu	His	Leu	Leu	Arg	Gly	Val	Thr	Gly	Val	Asp	Leu	Tyr	Arg	Gly															
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His	Ile	Pro	Leu	Ala	Phe	Asp	Pro	Thr	Ser	Ile	Pro	Arg	Gly	Ile	Pro															
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Leu	Glu	Ala	Ala	Ala	Ala	Ala	Tyr	Tyr	Leu	Pro	Arg	His	Leu	Ala	Pro															
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Ser	Pro	Thr	Tyr	Pro	His	Leu	Tyr	Pro	Pro	Tyr	Leu	Ile	Arg	Gly	Tyr															
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Pro	Asp	Thr	Ala	Ala	Leu	Glu	Asn	Arg	Gln	Thr	Ile	Ile	Asn	Asp	Tyr															
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Leu	Asn	Tyr	Ser	Ala	Gly	Pro	Arg	Gly	Ile	Ile	Asp	Leu	Ser	Gln	Val															
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Ser Arg His Ser Ser Pro Leu Ser Pro Gly Gly Pro Thr His Leu	
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Leu Arg Ser Thr Ser Thr Ser Ser Pro Val Arg Pro Ala Ala Thr Phe	
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Pro Pro Ala Thr His Cys Pro Leu Gly Gly Thr Leu Glu Gly Val Tyr	
1865 1870 1875	
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Pro Thr Leu Met Glu Pro Val Leu Leu Pro Lys Glu Thr Ser Arg Val	
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gcc cgg ccc gag cgg ccc cgt gtg gac ggt ggc cat gcc ttc ctc acc	5886
Ala Arg Pro Glu Arg Pro Arg Val Asp Gly Gly His Ala Phe Leu Thr	
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Lys Pro Pro Ala Arg Glu Pro Ala Ser Ser Pro Ser Lys Ser Ser Glu	
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ccc cga tcc cta gca ccc ccc agc tcc agc cac aca gcc atc gcc cgc	5982
Pro Arg Ser Leu Ala Pro Pro Ser Ser Ser His Thr Ala Ile Ala Arg	
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Thr Pro Ala Lys Ser Leu Ala Pro His His Ala Ser Pro Asp Pro Pro	
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Gly Pro Thr Ser Ala Ser Asp Leu His Arg Glu Lys Thr Gln Ser Lys	
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Pro Phe Ser Ile Gln Glu Leu Glu Leu Arg Ser Leu Gly Tyr His Ser	
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Gly Ala Gly Tyr Ser Pro Asp Gly Val Glu Pro Ile Ser Pro Val Ser	
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Ser Pro Ser Leu Thr His Asp Lys Gly Leu Ser Lys Pro Leu Glu Glu	
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Leu Glu Lys Ser His Leu Glu Gly Glu Leu Arg His Lys Gln Pro Gly	
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Pro Met Lys Leu Ser Ala Glu Ala Ala His Leu Pro His Leu Arg Pro	
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Ala Ile Glu Pro Val Ser Pro Pro Glu Gly Met Thr Glu Pro Gly His	
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6030-6750

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 35 40 45
 Tyr Thr Ser His Leu Ser Pro Gly Ser Ile Ile Gln Pro Gln Arg Arg

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Arg Pro Ser Leu Leu Ser Glu Phe Gln Pro Gly Ser Glu Arg Ser Gln 65 70 75 80		
Glu Leu His Leu Arg Pro Glu Ser Arg Thr Phe Leu Pro Glu Leu Gly 85 90 95		
Lys Pro Asp Ile Glu Phe Thr Glu Ser Lys Arg Pro Arg Leu Glu Leu 100 105 110		
Leu Pro Asp Thr Leu Leu Arg Pro Ser Pro Leu Leu Ala Thr Gly Gln 115 120 125		
Pro Ser Gly Ser Glu Asp Leu Thr Lys Asp Arg Ser Leu Ala Gly Lys 130 135 140		
Leu Glu Pro Val Ser Pro Pro Ser Pro Pro His Ala Asp Pro Glu Leu 145 150 155 160		
Glu Leu Ala Pro Ser Arg Leu Ser Lys Glu Glu Leu Ile Gln Asn Arg 165 170 175		
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Lys Leu Lys Lys Lys Gln Gln Gln Leu Glu Glu Glu Ala Ala Lys Pro 195 200 205		
Pro Glu Pro Glu Lys Pro Val Ser Pro Pro Pro Ile Glu Ser Lys His 210 215 220		
Arg Ser Leu Val Gln Ile Ile Tyr Asp Glu Asn Arg Lys Lys Ala Glu 225 230 235 240		
Ala Ala His Arg Ile Leu Glu Gly Leu Gly Pro Gln Val Glu Leu Pro 245 250 255		
Leu Tyr Asn Gln Pro Ser Asp Thr Arg Gln Tyr His Glu Asn Ile Lys 260 265 270		
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Pro Arg Arg Arg Ala Lys Glu Ser Lys Val Arg Glu Tyr Tyr Glu Lys 325 330 335		
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Arg	Arg	Asp	Gln	Gln	Arg	Ile	Lys	Phe	Ile	Asn	Met	Asn	Gly	Leu	Met
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Asp	Asp	Pro	Met	Lys	Val	Tyr	Lys	Asp	Arg	Gln	Val	Thr	Asn	Met	Trp
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Ser	Glu	Gln	Glu	Arg	Asp	Thr	Phe	Arg	Glu	Lys	Phe	Met	Gln	His	Pro
			435				440					445			
Lys	Asn	Phe	Gly	Leu	Ile	Ala	Ser	Phe	Leu	Glu	Arg	Lys	Thr	Val	Ala
			450			455						460			
Glu	Cys	Val	Leu	Tyr	Tyr	Tyr	Leu	Thr	Lys	Lys	Asn	Glu	Asn	Tyr	Lys
465					470					475					480
Ser	Leu	Val	Arg	Arg	Ser	Tyr	Arg	Arg	Arg	Gly	Lys	Ser	Gln	Gln	Gln
				485					490					495	
Gln	Gln	Gln	Gln	Gln	Gln	Gln	Gln	Gln	Gln	Gln	Met	Ala	Arg	Ser	Ser
			500					505						510	
Gln	Glu	Glu	Lys	Glu	Glu	Lys	Glu	Lys	Glu	Lys	Glu	Ala	Asp	Lys	Glu
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Glu	Glu	Lys	Gln	Asp	Ala	Glu	Asn	Glu	Lys	Glu	Glu	Leu	Ser	Lys	Glu
			530			535					540				
Lys	Thr	Asp	Asp	Thr	Ser	Gly	Glu	Asp	Asn	Asp	Glu	Lys	Glu	Ala	Val
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Ala	Ser	Lys	Gly	Arg	Lys	Thr	Ala	Asn	Ser	Gln	Gly	Arg	Arg	Lys	Gly
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Ser	Arg	Trp	Thr	Glu	Glu	Glu	Met	Glu	Thr	Ala	Lys	Lys	Gly	Leu	Leu
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Thr	Val	Ser	Gln	Cys	Lys	Asn	Phe	Tyr	Phe	Asn	Tyr	Lys	Lys	Arg	Gln
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Arg	Asn	Ala	Arg	Arg	Lys	Lys	Lys	Lys	Thr	Pro	Ala	Ala	Ala	Ser	Glu
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Glu	Thr	Ala	Phe	Pro	Pro	Ala	Ala	Glu	Asp	Glu	Glu	Met	Glu	Ala	Ser
			690			695						700			

Gly 705	Ala	Ser	Ala	Asn	Glu	Glu	Glu	Leu	Ala	Glu	Glu	Ala	Glu	Ala	Glu	Ser 720
Gln	Ala	Ser	Gly	Asn 725	Glu	Val	Pro	Arg	Val 730	Gly	Glu	Cys	Ser	Gly	Pro 735	
Ala	Ala	Val	Asn 740	Asn	Ser	Ser	Asp	Thr 745	Glu	Ser	Val	Pro	Ser 750	Pro	Arg	
Ser	Glu	Ala 755	Thr	Lys	Asp	Thr	Gly 760	Pro	Lys	Pro	Thr	Gly 765	Thr	Glu	Ala	
Leu 770	Pro	Ala	Ala	Thr	Gln	Pro 775	Pro	Val	Pro	Pro	Pro 780	Glu	Glu	Pro	Ala	
Ala 785	Ala	Pro	Ala	Glu	Pro 790	Ser	Pro	Val	Pro	Asp 795	Ala	Ser	Gly	Pro	Pro 800	
Ser	Pro	Glu	Pro	Ser 805	Pro	Ser	Pro	Ala	Ala 810	Pro	Pro	Ala	Thr	Val	Asp 815	
Lys	Asp	Glu	Gln 820	Glu	Ala	Pro	Ala	Ala 825	Pro	Ala	Pro	Gln	Thr 830	Glu	Asp	
Ala	Lys	Glu 835	Gln	Lys	Ser	Glu	Ala 840	Glu	Glu	Ile	Asp	Val 845	Gly	Lys	Pro	
Glu 850	Glu	Pro	Glu	Ala	Ser	Glu 855	Glu	Pro	Pro	Glu	Ser 860	Val	Lys	Ser	Asp	
His 865	Lys	Glu	Glu	Thr	Glu 870	Glu	Glu	Pro	Glu	Asp 875	Lys	Ala	Lys	Gly	Thr 880	
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Glu	Gly 930	Gly	Asp	Lys	Gly	Arg 935	Leu	Leu	Ser	Pro	Arg 940	Pro	Ser	Leu	Leu	
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Val 1010	Ser	Gln	Gln	Ser	Gly	Gly 1015	Ser	Pro	Arg	Gly	Lys 1020	Ser	Arg	Ser	Pro	
Val	Pro	Pro	Ala	Glu	Lys	Glu	Ala	Glu	Lys	Pro	Ala	Phe	Phe	Pro	Ala	

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Phe	Pro	Thr	Glu	Gly	Gln	Ser	Tyr	Arg	Leu	Ser	Pro	His	Ala	Gly	His					
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Arg	Leu	Pro	Ser	His	Pro	Pro	Arg	Glu	Val	Ile	Lys	Thr	Ser	Thr	Arg					
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Gly	Leu	His	Asp	Ser	Ala	Arg	Pro	Val	Leu	Pro	Arg	Pro	Pro	Ile	Ser					
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Pro	Gln	Leu	Gln	Arg	Leu	Tyr	His	Pro	Arg	Thr	Pro	Ala	Asp	Val	Leu					
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		1235					1240					1245								
Ser	Gln	Cys	Ser	Lys	Glu	Asp	Gly	Arg	Ser	Ser	Ser	Gly	Pro	Pro	His					
	1250					1255					1260									
Glu	Thr	Ala	Ala	Pro	Lys	Arg	Thr	Tyr	Asp	Met	Met	Glu	Gly	Arg	Val					
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Leu	Leu	Ser	Ser	Lys	Ala	Ser	Gln	Asp	Arg	Lys	Leu	Thr	Ser	Thr	Pro	
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Arg	Glu	Ile	Ala	Lys	Ser	Pro	His	Ser	Thr	Val	Pro	Glu	His	His	Pro	
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His	Pro	Ile	Ser	Pro	Tyr	Glu	His	Leu	Leu	Arg	Gly	Val	Thr	Gly	Val	
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Ser	Ala	Met	Ala	Gln	Arg	Ala	Asp	Met	Leu	Arg	Gly	Leu	Ser	Pro	Arg	
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Glu Ser Ser Leu Ala Leu Asn Tyr Ser Ala Gly Pro Arg Gly Ile Ile
1685 1690 1695

Asp Leu Ser Gln Val Pro His Leu Pro Val Leu Val Pro Pro Thr Pro
1700 1705 1710

Gly Thr Pro Ala Thr Ala Ile Asp Arg Leu Ala Tyr Leu Pro Thr Ala
1715 1720 1725

Pro Pro Pro Phe Ser Ser Arg His Ser Ser Ser Pro Leu Ser Pro Gly
1730 1735 1740

Gly Pro Thr His Leu Ala Lys Pro Thr Ala Thr Ser Ser Ser Glu Arg
745 1750 1755 1760

Glu Arg Glu Arg Glu Arg Glu Arg Asp Lys Ser Ile Leu Thr Ser Thr
1765 1770 1775

Thr Thr Val Glu His Ala Pro Ile Trp Arg Pro Gly Thr Glu Gln Ser
1780 1785 1790

Ser Gly Ala Gly Gly Ser Ser Arg Pro Ala Ser His Thr His Gln His
1795 1800 1805

Ser Pro Ile Ser Pro Arg Thr Gln Asp Ala Leu Gln Gln Arg Pro Ser
1810 1815 1820

Val Leu His Asn Thr Ser Met Lys Gly Val Val Thr Ser Val Glu Pro
825 1830 1835 1840

Gly Thr Pro Thr Val Leu Arg Ser Thr Ser Thr Ser Ser Pro Val Arg
1845 1850 1855

Pro Ala Ala Thr Phe Pro Pro Ala Thr His Cys Pro Leu Gly Gly Thr
1860 1865 1870

Leu Glu Gly Val Tyr Pro Thr Leu Met Glu Pro Val Leu Leu Pro Lys
1875 1880 1885

Glu Thr Ser Arg Val Ala Arg Pro Glu Arg Pro Arg Val Asp Gly Gly
1890 1895 1900

His Ala Phe Leu Thr Lys Pro Pro Ala Arg Glu Pro Ala Ser Ser Pro
905 1910 1915 1920

Ser Lys Ser Ser Glu Pro Arg Ser Leu Ala Pro Pro Ser Ser Ser His
1925 1930 1935

Thr Ala Ile Ala Arg Thr Pro Ala Lys Ser Leu Ala Pro His His Ala
1940 1945 1950

Ser Pro Asp Pro Pro Gly Pro Thr Ser Ala Ser Asp Leu His Arg Glu
1955 1960 1965

Lys Thr Gln Ser Lys Pro Phe Ser Ile Gln Glu Leu Glu Leu Arg Ser
1970 1975 1980

Leu Gly Tyr His Ser Gly Ala Gly Tyr Ser Pro Asp Gly Val Glu Pro
985 1990 1995 2000

Ile Ser Pro Val Ser Ser Pro Ser Leu Thr His Asp Lys Gly Leu Ser

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His	Lys	Gln	Pro	Gly	Pro	Met	Lys	Leu	Ser	Ala	Glu	Ala	Ala	His	Leu		
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Ala	Gln	His	Ile	Ser	Glu	Val	Ile	Thr	Gln	Asp	Tyr	Thr	Arg	His	His		
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Gly	Ala	Ser	Cys	Pro	Val	Leu	Asp	Leu	Arg	Arg	Pro	Pro	Ser	Asp	Leu		
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Tyr	Leu	Pro	Pro	Pro	Asp	His	Gly	Thr	Pro	Ala	Arg	Gly	Ser	Pro	His		
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Ser	Glu	Gly	Gly	Lys	Arg	Ser	Pro	Glu	Pro	Ser	Lys	Thr	Ser	Val	Leu		
145					2150				2155				2160				
Gly	Ser	Ser	Glu	Asp	Ala	Ile	Glu	Pro	Val	Ser	Pro	Pro	Glu	Gly	Met		
2165					2170					2175							
Thr	Glu	Pro	Gly	His	Ala	Arg	Ser	Ala	Val	Tyr	Pro	Leu	Leu	Tyr	Arg		
2180					2185					2190							
Asp	Gly	Glu	Gln	Gly	Glu	Pro	Arg	Met	Gly	Ser	Lys	Ser	Pro	Gly	Asn		
2195					2200					2205							
Thr	Ser	Gln	Pro	Pro	Ala	Phe	Phe	Ser	Lys	Leu	Thr	Glu	Ser	Asn	Ser		
2210					2215					2220							
Ala	Met	Val	Lys	Ser	Lys	Lys	Gln	Glu	Ile	Asn	Lys	Lys	Leu	Asn	Thr		
2225					2230					2235					2240		
His	Asn	Arg	Asn	Glu	Pro	Glu	Tyr	Asn	Ile	Gly	Gln	Pro	Gly	Thr	Glu		
2245					2250					2255							
Ile	Phe	Asn	Met	Pro	Ala	Ile	Thr	Gly	Ala	Gly	Leu	Met	Thr	Cys	Arg		
2260					2265					2270							
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2275					2280					2285							
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2290					2295					2300							
Pro	Pro	Leu	Gly	Ala	Asn	Ala	Phe	Asn	Pro	Leu	Asn	Ala	Ser	Ala	Ser		
305					2310					2315					2320		
Leu	Pro	Ala	Ala	Ala	Met	Pro	Ile	Thr	Thr	Ala	Asp	Gly	Arg	Ser	Asp		
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2005-2015

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Met	Ser	Gly	Ser	Thr	Gln	Pro	Val	Ala	Gln	Thr	Trp	Arg	Ala	Ala	Glu	
1				5				10				15				
ccc	cgc	tac	cca	ccc	cat	ggc	atc	tcc	tac	ccg	gtg	cag	ata	gcc	cgg	96
Pro	Arg	Tyr	Pro	Pro	His	Gly	Ile	Ser	Tyr	Pro	Val	Gln	Ile	Ala	Arg	
20				25				30								
tcc	cac	acg	gac	gtg	ggg	ctg	ctt	gag	tac	caa	cac	cac	ccc	cgt	gac	144
Ser	His	Thr	Asp	Val	Gly	Leu	Leu	Glu	Tyr	Gln	His	His	Pro	Arg	Asp	
35				40				45								
tac	acc	tca	cac	ctg	tca	ccc	ggg	tcc	atc	atc	cag	cca	cag	agg	agg	192
Tyr	Thr	Ser	His	Leu	Ser	Pro	Gly	Ser	Ile	Ile	Gln	Pro	Gln	Arg	Arg	
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cgg	ccc	tca	ctg	ctg	tca	gag	ttc	cag	cct	ggg	agt	gaa	cgg	tct	cag	240
Arg	Pro	Ser	Leu	Leu	Ser	Glu	Phe	Gln	Pro	Gly	Ser	Glu	Arg	Ser	Gln	
65				70				75				80				
gag	ctc	cac	ctg	cgc	cct	gag	tcc	cgc	acg	ttc	ctg	cct	gag	ctg	ggc	288
Glu	Leu	His	Leu	Arg	Pro	Glu	Ser	Arg	Thr	Phe	Leu	Pro	Glu	Leu	Gly	
85				90				95								
aaq	ccc	gac	ata	gaa	ttc	acc	gag	agc	aag	cgc	ccc	cgc	ctg	gag	cta	336

Lys	Pro	Asp	Ile	Glu	Phe	Thr	Glu	Ser	Lys	Arg	Pro	Arg	Leu	Glu	Leu	
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cta	ccc	gat	acc	ctg	ctg	cgc	cca	tca	ccc	ctg	ctg	gcc	act	ggg	cag	384
Leu	Pro	Asp	Thr	Leu	Leu	Arg	Pro	Ser	Pro	Leu	Leu	Ala	Thr	Gly	Gln	
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Pro	Ser	Gly	Ser	Glu	Asp	Leu	Thr	Lys	Asp	Arg	Ser	Leu	Ala	Gly	Lys	
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Leu	Glu	Pro	Val	Ser	Pro	Pro	Ser	Pro	Pro	His	Ala	Asp	Pro	Glu	Leu	
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Glu	Leu	Ala	Pro	Ser	Arg	Leu	Ser	Lys	Glu	Glu	Leu	Ile	Gln	Asn	Arg	
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ttg	gac	cgc	gtg	gac	cgt	gag	atc	acc	atg	gta	gag	cag	cag	atc	tcc	576
Leu	Asp	Arg	Val	Asp	Arg	Glu	Ile	Thr	Met	Val	Glu	Gln	Gln	Ile	Ser	
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aag	ctg	aag	aag	aag	cag	caa	cag	ttg	gag	gag	gag	gcc	gcc	aag	ccg	624
Lys	Leu	Lys	Lys	Lys	Gln	Gln	Gln	Leu	Glu	Glu	Glu	Ala	Ala	Lys	Pro	
			195				200						205			
ccc	gaa	ccc	gag	aag	cct	gtg	tcg	cca	cca	ccc	ata	gaa	tca	aag	cac	672
Pro	Glu	Pro	Glu	Lys	Pro	Val	Ser	Pro	Pro	Pro	Ile	Glu	Ser	Lys	His	
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Arg	Ser	Leu	Val	Gln	Ile	Ile	Tyr	Asp	Glu	Asn	Arg	Lys	Lys	Ala	Glu	
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Ala	Ala	His	Arg	Ile	Leu	Glu	Gly	Leu	Gly	Pro	Gln	Val	Glu	Leu	Pro	
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Leu	Tyr	Asn	Gln	Pro	Ser	Asp	Thr	Arg	Gln	Tyr	His	Glu	Asn	Ile	Lys	
			260				265						270			
ata	aac	cag	gcg	atg	cgg	aag	aag	ctg	atc	ttg	tac	ttt	aag	cgg	agg	864
Ile	Asn	Gln	Ala	Met	Arg	Lys	Lys	Leu	Ile	Leu	Tyr	Phe	Lys	Arg	Arg	
			275				280						285			
aac	cac	gcg	cgc	aag	cag	tgg	gaa	cag	cgc	ttc	tgc	cag	cgc	tat	gac	912
Asn	His	Ala	Arg	Lys	Gln	Trp	Glu	Gln	Arg	Phe	Cys	Gln	Arg	Tyr	Asp	
			290				295			300						
cag	ctc	atg	gag	gcg	tgg	gag	aag	aag	gta	gag	cgc	ata	gag	aac	aat	960
Gln	Leu	Met	Glu	Ala	Trp	Glu	Lys	Lys	Val	Glu	Arg	Ile	Glu	Asn	Asn	
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Pro	Arg	Arg	Arg	Ala	Lys	Glu	Ser	Lys	Val	Arg	Glu	Tyr	Tyr	Glu	Lys	
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cga	cgc	gac	cag	cag	agg	atc	aag	ttc	atc	aac	atg	aat	gga	ctc	atg	1248
Arg	Arg	Asp	Gln	Gln	Arg	Ile	Lys	Phe	Ile	Asn	Met	Asn	Gly	Leu	Met	
405					410					415						
gat	gac	ccc	atg	aag	gtc	tac	aag	gac	cgt	cag	gtt	acc	aac	atg	tgg	1296
Asp	Asp	Pro	Met	Lys	Val	Tyr	Lys	Asp	Arg	Gln	Val	Thr	Asn	Met	Trp	
420					425					430						
agc	gag	cag	gag	agg	gac	acc	ttc	cgt	gag	aag	ttt	atg	cag	cac	cct	1344
Ser	Glu	Gln	Glu	Arg	Asp	Thr	Phe	Arg	Glu	Lys	Phe	Met	Gln	His	Pro	
435					440					445						
aag	aac	ttt	ggc	ctg	att	gcc	tca	ttc	ctg	gag	aga	aag	acg	gtc	gct	1392
Lys	Asn	Phe	Gly	Leu	Ile	Ala	Ser	Phe	Leu	Glu	Arg	Lys	Thr	Val	Ala	
450					455					460						
gag	tgt	gtc	ctc	tat	tac	tac	ctg	acc	aag	aag	aat	gaa	aat	tac	aag	1440
Glu	Cys	Val	Leu	Tyr	Tyr	Tyr	Leu	Thr	Lys	Lys	Asn	Glu	Asn	Tyr	Lys	
465					470					475					480	
agc	ttg	gtg	agg	cgg	agc	tat	cgg	cgc	cgt	ggc	aag	agc	cag	cag	cag	1488
Ser	Leu	Val	Arg	Arg	Ser	Tyr	Arg	Arg	Arg	Gly	Lys	Ser	Gln	Gln	Gln	
485					490					495						
cag	cag	cag	caa	caa	cag	cag	cag	cag	cag	cag	atg	gca	cgg	agc	agc	1536
Gln	Gln	Gln	Gln	Gln	Gln	Gln	Gln	Gln	Gln	Gln	Met	Ala	Arg	Ser	Ser	
500					505					510						
cag	gag	gag	aag	gag	gag	aag	gag	aag	gag	aag	gag	gcc	gac	aag	gag	1584
Gln	Glu	Glu	Lys	Glu	Glu	Lys	Glu	Lys	Glu	Lys	Glu	Ala	Asp	Lys	Glu	
515					520					525						
gaa	gag	aag	cag	gat	gcg	gag	aac	gag	aag	gaa	gaa	ctc	agc	aag	gag	1632
Glu	Glu	Lys	Gln	Asp	Ala	Glu	Asn	Glu	Lys	Glu	Glu	Leu	Ser	Lys	Glu	
530					535					540						
aag	aca	gac	gac	act	tct	ggc	gag	gac	aac	gat	gag	aaa	gag	gcc	gtg	1680
Lys	Thr	Asp	Asp	Thr	Ser	Gly	Glu	Asp	Asn	Asp	Glu	Lys	Glu	Ala	Val	
545					550					555					560	
gcc	tcc	aaa	ggc	cgc	aaa	act	gcc	aac	agc	caa	ggc	cgc	cgc	aaa	ggc	1728
Ala	Ser	Lys	Gly	Arg	Lys	Thr	Ala	Asn	Ser	Gln	Gly	Arg	Arg	Lys	Gly	
565					570					575						
cgt	atc	acg	cgc	tcc	atg	gcc	aac	gag	gcc	aac	cat	gag	gag	aca	gcc	1776
Arg	Ile	Thr	Arg	Ser	Met	Ala	Asn	Glu	Ala	Asn	His	Glu	Glu	Thr	Ala	
580					585					590						

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acc cca cag caa agt tca gag ctg gct tcc atg gag atg aac gag agt	1824
Thr Pro Gln Gln Ser Ser Glu Leu Ala Ser Met Glu Met Asn Glu Ser	
595 600 605	
tct cgc tgg act gag gaa gag atg gag aca gca aag aaa ggc ctc ctg	1872
Ser Arg Trp Thr Glu Glu Glu Met Glu Thr Ala Lys Lys Gly Leu Leu	
610 615 620	
gaa cat ggg agg aac tgg tca gcc att gcc cgc atg gtg ggc tcc aag	1920
Glu His Gly Arg Asn Trp Ser Ala Ile Ala Arg Met Val Gly Ser Lys	
625 630 635 640	
acc gtg tcc cag tgt aag aac ttc tac ttc aac tac aag aag agg cag	1968
Thr Val Ser Gln Cys Lys Asn Phe Tyr Phe Asn Tyr Lys Lys Arg Gln	
645 650 655	
aac ctg gac gaa atc ctt cag cag cac aag cta aag atg gag aag gag	2016
Asn Leu Asp Glu Ile Leu Gln Gln His Lys Leu Lys Met Glu Lys Glu	
660 665 670	
agg aac gct cgg agg aag aag aag aag acc cca gct gcg gcg agc gag	2064
Arg Asn Ala Arg Arg Lys Lys Lys Lys Thr Pro Ala Ala Ala Ser Glu	
675 680 685	
gag aca gcc ttc cca cct gcc gct gag gac gaa gag atg gaa gca tca	2112
Glu Thr Ala Phe Pro Pro Ala Ala Glu Asp Glu Glu Met Glu Ala Ser	
690 695 700	
ggc gca agt gcc aat gag gaa gag ctg gcg gag gag gca gaa gcc tca	2160
Gly Ala Ser Ala Asn Glu Glu Glu Leu Ala Glu Glu Ala Glu Ala Ser	
705 710 715 720	
cag gcc tct ggg aat gag gtt ccc aga gtt ggg gag tgc agt ggc cca	2208
Gln Ala Ser Gly Asn Glu Val Pro Arg Val Gly Glu Cys Ser Gly Pro	
725 730 735	
gct gct gtc aac aac agc tct gat act gag agt gtc cca tcc ccg cgt	2256
Ala Ala Val Asn Asn Ser Ser Asp Thr Glu Ser Val Pro Ser Pro Arg	
740 745 750	
tca gaa gcc acg aag gac act ggg cct aaa ccc act ggc act gaa gca	2304
Ser Glu Ala Thr Lys Asp Thr Gly Pro Lys Pro Thr Gly Thr Glu Ala	
755 760 765	
ttg ccc gct gcc acc cag cca cct gtt cct cct cca gaa gaa ccg gca	2352
Leu Pro Ala Ala Thr Gln Pro Pro Val Pro Pro Pro Glu Glu Pro Ala	
770 775 780	
gca gcc cct gct gag ccc tcc cca gtc cct gat gcc agt ggc cca cca	2400
Ala Ala Pro Ala Glu Pro Ser Pro Val Pro Asp Ala Ser Gly Pro Pro	
785 790 795 800	
tcc cca gag cct tcc cca tca cct gcc gca ccc ccg gct act gtg gac	2448
Ser Pro Glu Pro Ser Pro Ser Pro Ala Ala Pro Pro Ala Thr Val Asp	
805 810 815	
aag gat gaa caa gaa gcc ccg gct gct cca gct ccc cag aca gaa gat	2496
Lys Asp Glu Gln Glu Ala Pro Ala Ala Pro Ala Pro Gln Thr Glu Asp	
820 825 830	

102220-102220

gcc Ala	aag Lys	gag Glu 835	cag Gln	aag Lys	tct Ser	gag Glu	gcc Ala 840	gag Glu	gag Glu	atc Ile	gat Asp	gtg Val 845	gga Gly	aag Lys	cca Pro	2544
gag Glu	gag Glu 850	ccc Pro	gag Glu	gcc Ala	tct Ser	gag Glu 855	gag Glu	ccc Pro	ccg Pro	gag Glu 860	agt Ser	gta Val	aag Lys	agt Ser	gac Asp	2592
cac His 865	aag Lys	gag Glu	gag Glu	acc Thr	gag Glu 870	gaa Glu	gag Glu	cct Pro	gaa Glu	gac Asp 875	aaa Lys	gcc Ala	aag Lys	ggc Gly	aca Thr 880	2640
gag Glu	gcc Ala	att Ile	gaa Glu	act Thr 885	gtg Val	tct Ser	gag Glu	gca Ala	cca Pro 890	ctt Leu	aag Lys	gtg Val	gag Glu	gag Glu 895	gct Ala	2688
ggt Gly	agc Ser	aag Lys	gca Ala 900	gct Ala	gtg Val	acc Thr	aag Lys	ggt Gly 905	tcc Ser	agc Ser	tca Ser	ggt Gly 910	gcc Ala	acc Thr	cag Gln	2736
gac Asp	agt Ser	gac Asp 915	tcc Ser	agt Ser	gcc Ala	acc Thr	tgc Cys 920	agt Ser	gcc Ala	gat Asp	gag Glu	gtg Val 925	gac Asp	gaa Glu	ccc Pro	2784
gaa Glu 930	gga Gly	ggt Gly	gac Asp	aag Lys	ggc Gly	agg Arg 935	ctg Leu	ctg Leu	tca Ser	cca Pro	agg Arg 940	ccc Pro	agc Ser	ctc Leu	ctc Leu	2832
acc Thr 945	ccg Pro	gct Ala	gga Gly	gat Asp	ccc Pro 950	cgg Arg	gcc Ala	agt Ser	acc Thr	tcg Ser 955	ccc Pro	cag Gln	aag Lys	ccg Pro	ctg Leu 960	2880
gac Asp	ctg Leu	aag Lys	cag Gln	ctg Leu 965	aag Lys	cag Gln	cga Arg	gca Ala	gcc Ala 970	gcc Ala	atc Ile	ccc Pro	cct Pro	atc Ile 975	gtc Val	2928
acc Thr	aag Lys	gtc Val	cat His 980	gag Glu	ccc Pro	ccc Pro	cgg Arg	gag Glu 985	gac Asp	aca Thr	gta Val	ccc Pro 990	cca Pro	aag Lys	cca Pro	2976
gtt Val	ccc Pro	cct Pro 995	gtg Val	cct Pro	cca Pro	ccc Pro	acg Thr 1000	cag Gln	cac His	cta Leu	cag Gln 1005	cca Pro	gag Glu	ggt Gly	gac Asp	3024
gtg Val 1010	tct Ser	cag Gln	cag Gln	tcg Ser	gga Gly 1015	gga Gly	agt Ser	cca Pro	cgt Arg	ggc Gly 1020	aag Lys	tcc Ser	cgc Arg	agc Ser	cca Pro	3072
gtg Val 1025	cct Pro	cct Pro	gcc Ala	gag Glu 1030	aaa Lys	gag Glu	gca Ala	gag Glu	aaa Lys 1035	ccc Pro	gca Ala	ttc Phe	ttt Phe	ccg Pro 1040	gct Ala	3120
ttc Phe	cca Pro	act Thr	gag Glu 1045	ggc Gly	caa Gln	agc Ser	tac Tyr	cga Arg	ctg Leu 1050	agc Ser	ccc Pro	cac His	gct Ala	ggt Gly 1055	cat His	3168
cgg Arg	ctg Leu	cct Pro	tcc Ser 1060	cat His	cct Pro	cca Pro	cgg Arg	gag Glu 1065	gtg Val	atc Ile	aag Lys	act Thr 1070	tcc Ser	aca Thr	cgc Arg	3216
gct	gac	cct	ctc	ttc	tcc	tac	aca	ccc	ccc	ggt	cac	ccg	ctg	cct	ctg	3264

Ala	Asp	Pro	Leu	Phe	Ser	Tyr	Thr	Pro	Pro	Gly	His	Pro	Leu	Pro	Leu	
1075						1080			1085							
ggc	ctc	cac	gat	agt	gcc	cgg	ccc	gtc	ctg	cca	cgt	ccc	ccc	atc	tct	3312
Gly	Leu	His	Asp	Ser	Ala	Arg	Pro	Val	Leu	Pro	Arg	Pro	Pro	Ile	Ser	
1090						1095			1100							
aac	ccc	cca	ccc	ctc	atc	tcc	tct	gcc	aag	cat	ccc	ggc	gta	ctt	gag	3360
Asn	Pro	Pro	Pro	Leu	Ile	Ser	Ser	Ala	Lys	His	Pro	Gly	Val	Leu	Glu	
1105						1110			1115			1120				
agg	cag	ctg	ggt	gcc	atc	tcc	cag	ggg	atg	tca	gtc	cag	ctt	cgt	gtg	3408
Arg	Gln	Leu	Gly	Ala	Ile	Ser	Gln	Gly	Met	Ser	Val	Gln	Leu	Arg	Val	
			1125						1130			1135				
cct	cac	tca	gag	cat	gcc	aag	ccc	atg	ggc	cct	ctc	acc	atg	gag	ctg	3456
Pro	His	Ser	Glu	His	Ala	Lys	Pro	Met	Gly	Pro	Leu	Thr	Met	Glu	Leu	
			1140						1145			1150				
ccc	ctt	gcc	gtg	gac	cct	aag	aag	ctg	ggg	aca	gca	ctg	gct	ccg	cca	3504
Pro	Leu	Ala	Val	Asp	Pro	Lys	Lys	Leu	Gly	Thr	Ala	Leu	Ala	Pro	Pro	
1155						1160						1165				
cca	gtg	gaa	gca	tca	cca	agg	gcc	tcc	cag	tac	ccg	ggc	tgc	aga	cgg	3552
Pro	Val	Glu	Ala	Ser	Pro	Arg	Ala	Ser	Gln	Tyr	Pro	Gly	Cys	Arg	Arg	
1170						1175						1180				
ccc	cag	cta	cag	agg	ctc	tat	cac	cca	cgc	acg	ccc	gca	gac	gtc	ctc	3600
Pro	Gln	Leu	Gln	Arg	Leu	Tyr	His	Pro	Arg	Thr	Pro	Ala	Asp	Val	Leu	
1185						1190						1195			1200	
tac	aag	ggt	acc	atc	agc	agg	atc	gtc	ggt	gag	gac	agc	cca	agt	cgc	3648
Tyr	Lys	Gly	Thr	Ile	Ser	Arg	Ile	Val	Gly	Glu	Asp	Ser	Pro	Ser	Arg	
			1205						1210						1215	
ctt	gac	cgg	gca	cga	gag	gac	acc	ctg	ccc	aag	ggc	cat	gtc	atc	tat	3696
Leu	Asp	Arg	Ala	Arg	Glu	Asp	Thr	Leu	Pro	Lys	Gly	His	Val	Ile	Tyr	
			1220						1225						1230	
gag	ggc	aag	aaa	ggc	cac	gtc	cta	tcc	tat	gaa	ggt	ggt	atg	tcc	gtg	3744
Glu	Gly	Lys	Lys	Gly	His	Val	Leu	Ser	Tyr	Glu	Gly	Gly	Met	Ser	Val	
1235						1240						1245				
tca	cag	tgc	tct	aag	gag	gat	gga	agg	agc	agc	tcg	ggc	cca	ccc	cat	3792
Ser	Gln	Cys	Ser	Lys	Glu	Asp	Gly	Arg	Ser	Ser	Ser	Gly	Pro	Pro	His	
1250						1255						1260				
gag	act	gcc	gcc	cct	aaa	cgc	acc	tat	gac	atg	atg	gag	ggc	cgt	gta	3840
Glu	Thr	Ala	Ala	Pro	Lys	Arg	Thr	Tyr	Asp	Met	Met	Glu	Gly	Arg	Val	
1265						1270						1275			1280	
ggc	agg	act	gtc	acc	tca	gcc	agc	ata	gag	gga	ctc	atg	ggc	cgc	gcc	3888
Gly	Arg	Thr	Val	Thr	Ser	Ala	Ser	Ile	Glu	Gly	Leu	Met	Gly	Arg	Ala	
			1285						1290						1295	
atc	cct	gag	cag	cac	agc	ccc	cac	ctc	aag	gag	cag	cat	cac	atc	cga	3936
Ile	Pro	Glu	Gln	His	Ser	Pro	His	Leu	Lys	Glu	Gln	His	His	Ile	Arg	

1315					1320					1325						
gac	tac	tta	cgg	cgg	gag	gcc	aag	ctc	ttg	aag	cga	gaa	ggg	aca	cca	4032
Asp	Tyr	Leu	Arg	Arg	Glu	Ala	Lys	Leu	Leu	Lys	Arg	Glu	Gly	Thr	Pro	
1330			1335					1340								
cct	ccc	cca	cca	cca	cct	cgg	gac	ctg	act	gag	acc	tac	aag	ccc	cgg	4080
Pro	Pro	Pro	Pro	Pro	Pro	Arg	Asp	Leu	Thr	Glu	Thr	Tyr	Lys	Pro	Arg	
1345		1350					1355					1360				
ccc	ctg	gac	cct	ctg	ggt	ccc	ctg	aag	ctg	aag	ccg	act	cac	gag	ggt	4128
Pro	Leu	Asp	Pro	Leu	Gly	Pro	Leu	Lys	Leu	Lys	Pro	Thr	His	Glu	Gly	
1365					1370					1375						
gtg	gta	gca	act	gtg	aag	gag	gcg	ggc	cgc	tct	atc	cat	gag	atc	cgc	4176
Val	Val	Ala	Thr	Val	Lys	Glu	Ala	Gly	Arg	Ser	Ile	His	Glu	Ile	Pro	
1380				1385					1390							
aga	gag	gag	ctg	cgc	cgc	aca	cct	gag	cta	ccc	ctg	gca	cca	cgg	cct	4224
Arg	Glu	Glu	Leu	Arg	Arg	Thr	Pro	Glu	Leu	Pro	Leu	Ala	Pro	Arg	Pro	
1395			1400					1405								
ctg	aag	gag	ggt	tcc	atc	acc	cag	ggc	acc	cca	ctc	aag	tac	gac	tct	4272
Leu	Lys	Glu	Gly	Ser	Ile	Thr	Gln	Gly	Thr	Pro	Leu	Lys	Tyr	Asp	Ser	
1410			1415					1420								
ggg	gca	ccc	tcc	act	ggc	acc	aag	aaa	cac	gac	gtg	cgc	tcc	atc	atc	4320
Gly	Ala	Pro	Ser	Thr	Gly	Thr	Lys	Lys	His	Asp	Val	Arg	Ser	Ile	Ile	
1425		1430					1435					1440				
ggc	agc	ccc	ggc	cgg	cct	ttc	cct	gcc	ctg	cac	ccg	ctg	gac	ata	atg	4368
Gly	Ser	Pro	Gly	Arg	Pro	Phe	Pro	Ala	Leu	His	Pro	Leu	Asp	Ile	Met	
1445					1450					1455						
gct	gac	gcc	cgg	gca	ctg	gag	cgt	gcc	tgc	tat	gaa	gag	agt	ctg	aag	4416
Ala	Asp	Ala	Arg	Ala	Leu	Glu	Arg	Ala	Cys	Tyr	Glu	Glu	Ser	Leu	Lys	
1460				1465					1470							
agc	cgg	tca	ggg	acc	agc	agt	ggt	gca	ggg	ggc	tcc	atc	aca	cgt	ggg	4464
Ser	Arg	Ser	Gly	Thr	Ser	Ser	Gly	Ala	Gly	Gly	Ser	Ile	Thr	Arg	Gly	
1475			1480					1485								
gct	cca	gtc	gtc	gtg	cct	gaa	ctg	ggc	aag	cca	cgg	caa	agc	cca	ctg	4512
Ala	Pro	Val	Val	Val	Pro	Glu	Leu	Gly	Lys	Pro	Arg	Gln	Ser	Pro	Leu	
1490			1495					1500								
act	tac	gaa	gac	cac	ggg	gca	ccc	ttc	acc	agt	cac	ctg	cca	cgt	ggc	4560
Thr	Tyr	Glu	Asp	His	Gly	Ala	Pro	Phe	Thr	Ser	His	Leu	Pro	Arg	Gly	
1505		1510					1515					1520				
tcc	cct	gtg	acc	acg	agg	gag	ccc	acg	cca	cgc	ctt	cag	gaa	ggc	agc	4608
Ser	Pro	Val	Thr	Thr	Arg	Glu	Pro	Thr	Pro	Arg	Leu	Gln	Glu	Gly	Ser	
1525					1530					1535						
ctc	cta	tcc	agc	aag	gcg	tcc	cag	gac	cgg	aag	ctg	aca	tct	aca	ccc	4656
Leu	Leu	Ser	Ser	Lys	Ala	Ser	Gln	Asp	Arg	Lys	Leu	Thr	Ser	Thr	Pro	
1540				1545					1550							
cgg	gag	atc	gcc	aag	tcc	cca	cac	agc	act	gtg	ccc	gag	cac	cac	cct	4704</

cac ccc atc tcc ccc tat gag cac ttg ctc cgg ggc gtg act ggt gtg	4752
His Pro Ile Ser Pro Tyr Glu His Leu Leu Arg Gly Val Thr Gly Val	
1570 1575 1580	
gac ctg tac cgt ggt cac atc cca ttg gcc ttt gac ccc acc tcc ata	4800
Asp Leu Tyr Arg Gly His Ile Pro Leu Ala Phe Asp Pro Thr Ser Ile	
1585 1590 1595 1600	
ccc cga ggg atc cct ctg gaa gca gca gcc gca gcc tac tac ctg ccc	4848
Pro Arg Gly Ile Pro Leu Glu Ala Ala Ala Ala Tyr Tyr Leu Pro	
1605 1610 1615	
cgg cac ttg gcc ccc agc ccc acc tac cca cac ctg tac cca cct tac	4896
Arg His Leu Ala Pro Ser Pro Thr Tyr Pro His Leu Tyr Pro Pro Tyr	
1620 1625 1630	
ctc atc cgc ggc tac cct gac acg gcg gcc ctg gag aac cgc cag acc	4944
Leu Ile Arg Gly Tyr Pro Asp Thr Ala Ala Leu Glu Asn Arg Gln Thr	
1635 1640 1645	
atc atc aat gac tac atc acc tcg cag cag atg cac cac aac gct gcc	4992
Ile Ile Asn Asp Tyr Ile Thr Ser Gln Gln Met His His Asn Ala Ala	
1650 1655 1660	
tcc gcc atg gcc cag cgt gct gac atg ctg agg ggt ctg tca ccg cga	5040
Ser Ala Met Ala Gln Arg Ala Asp Met Leu Arg Gly Leu Ser Pro Arg	
1665 1670 1675 1680	
gag tcc tcg ctg gcc ctc aat tat tcc gct ggc cca aga ggc att atc	5088
Glu Ser Ser Leu Ala Leu Asn Tyr Ser Ala Gly Pro Arg Gly Ile Ile	
1685 1690 1695	
gac ctg tcc caa gtg cca cac ctg ccc gtg ctg gtg cca cca acg cca	5136
Asp Leu Ser Gln Val Pro His Leu Pro Val Leu Val Pro Pro Thr Pro	
1700 1705 1710	
ggc acc cct gcc acc gcc atc gac cgc ctt gcc tac ctc ccc act gcg	5184
Gly Thr Pro Ala Thr Ala Ile Asp Arg Leu Ala Tyr Leu Pro Thr Ala	
1715 1720 1725	
ccc cca ccc ttc agc agc cgc cac agt agc tca ccg ctg tcc cca gga	5232
Pro Pro Pro Phe Ser Ser Arg His Ser Ser Ser Pro Leu Ser Pro Gly	
1730 1735 1740	
ggc ccc act cac cta gct aaa cca act gcc aca tct tca tcg gag cgg	5280
Gly Pro Thr His Leu Ala Lys Pro Thr Ala Thr Ser Ser Ser Glu Arg	
1745 1750 1755 1760	
gaa cgg gaa cgt gag cgg gaa cga gac aag tcc atc ctc acg tct acc	5328
Glu Arg Glu Arg Glu Arg Glu Arg Asp Lys Ser Ile Leu Thr Ser Thr	
1765 1770 1775	
act aca gtg gag cat gca ccc atc tgg aga cct ggt acg gag cag agc	5376
Thr Thr Val Glu His Ala Pro Ile Trp Arg Pro Gly Thr Glu Gln Ser	
1780 1785 1790	
agc ggg gct ggg ggc agc agc cgc ccc gcc tcc cac acc cac cag cac	5424
Ser Gly Ala Gly Gly Ser Ser Arg Pro Ala Ser His Thr His Gln His	
1795 1800 1805	

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tcg ccc atc tcc ccc cgg acc cag gac gcc ttg cag cag agg ccc agt	5472
Ser Pro Ile Ser Pro Arg Thr Gln Asp Ala Leu Gln Gln Arg Pro Ser	
1810 1815 1820	
gtg ctg cac aac acg agc atg aag ggc gtg gtc acc tcc gtg gaa ccc	5520
Val Leu His Asn Thr Ser Met Lys Gly Val Val Thr Ser Val Glu Pro	
1825 1830 1835 1840	
ggc acg ccc acg gtc ctg agg tcc acc tcc acc tct tcg cct gtc cgc	5568
Gly Thr Pro Thr Val Leu Arg Ser Thr Ser Thr Ser Ser Pro Val Arg	
1845 1850 1855	
cca gct gcc aca ttc cca cct gcc acc cac tgc cca ctt ggt ggc acc	5616
Pro Ala Ala Thr Phe Pro Pro Ala Thr His Cys Pro Leu Gly Gly Thr	
1860 1865 1870	
ctt gaa ggg gtc tac cct acc ctc atg gag ccc gtc ctg tta ccc aag	5664
Leu Glu Gly Val Tyr Pro Thr Leu Met Glu Pro Val Leu Leu Pro Lys	
1875 1880 1885	
gag acc tct cgg gtc gcc cgg ccc gag cgg ccc cgt gtg gac ggt ggc	5712
Glu Thr Ser Arg Val Ala Arg Pro Glu Arg Pro Arg Val Asp Gly Gly	
1890 1895 1900	
cat gcc ttc ctc acc aaa ccc ccg gcc cgg gag ccc gcc tcc tca ccc	5760
His Ala Phe Leu Thr Lys Pro Pro Ala Arg Glu Pro Ala Ser Ser Pro	
1905 1910 1915 1920	
agc aag agc tcc gag ccc cga tcc cta gca ccc ccc agc tcc agc cac	5808
Ser Lys Ser Ser Glu Pro Arg Ser Leu Ala Pro Pro Ser Ser Ser His	
1925 1930 1935	
aca gcc atc gcc cgc acc cca gca aag agc ctt gca ccc cac cat gcc	5856
Thr Ala Ile Ala Arg Thr Pro Ala Lys Ser Leu Ala Pro His His Ala	
1940 1945 1950	
agt ccg gac ccg ccg ggg ccc acc tcg gcc tca gat ctg cac cga gaa	5904
Ser Pro Asp Pro Pro Gly Pro Thr Ser Ala Ser Asp Leu His Arg Glu	
1955 1960 1965	
aag act caa agt aaa ccc ttt tcc atc cag gaa ttg gaa ctc cgt tct	5952
Lys Thr Gln Ser Lys Pro Phe Ser Ile Gln Glu Leu Glu Leu Arg Ser	
1970 1975 1980	
ctg ggt tac cac agt gga gct ggc tac agc ccc gat ggg gtg gag ccc	6000
Leu Gly Tyr His Ser Gly Ala Gly Tyr Ser Pro Asp Gly Val Glu Pro	
1985 1990 1995 2000	
atc agc ccg gtg agc tcc ccc agc ctg acc cac gac aag ggg ctc tcc	6048
Ile Ser Pro Val Ser Ser Pro Ser Leu Thr His Asp Lys Gly Leu Ser	
2005 2010 2015	
aaa cct ctg gaa gag cta gag aag agc cac ttg gaa ggg gag ctg cgg	6096
Lys Pro Leu Glu Glu Leu Glu Lys Ser His Leu Glu Gly Glu Leu Arg	
2020 2025 2030	
cac aag cag cca ggc ccc atg aag ctc agc gcg gag gct gcc cat ctc	6144
His Lys Gln Pro Gly Pro Met Lys Leu Ser Ala Glu Ala Ala His Leu	
2035 2040 2045	
cca cat ctg cgg cca ctg ccc gag agc cag ccc tca tcc agc cca ctc	6192

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Pro	His	Leu	Arg	Pro	Leu	Pro	Glu	Ser	Gln	Pro	Ser	Ser	Ser	Pro	Leu				
2050				2055				2060											
ctc	cag	act	gcc	cca	ggc	atc	aaa	ggg	cac	cag	agg	gtg	gtc	acc	ctg		6240		
Leu	Gln	Thr	Ala	Pro	Gly	Ile	Lys	Gly	His	Gln	Arg	Val	Val	Thr	Leu				
2065				2070				2075				2080							
gct	cag	cac	atc	agc	gag	gtc	att	acg	cag	gac	tac	acc	cgg	cac	cac		6288		
Ala	Gln	His	Ile	Ser	Glu	Val	Ile	Thr	Gln	Asp	Tyr	Thr	Arg	His	His				
				2085				2090				2095							
ccg	cag	cag	ctc	agt	ggc	ccc	ctt	ccc	gcc	cct	ctc	tac	tcc	ttt	ccc		6336		
Pro	Gln	Gln	Leu	Ser	Gly	Pro	Leu	Pro	Ala	Pro	Leu	Tyr	Ser	Phe	Pro				
				2100				2105				2110							
gga	gcc	agc	tgc	cct	gtg	ctg	gat	ctt	cgc	cgc	cca	ccc	agt	gac	ctc		6384		
Gly	Ala	Ser	Cys	Pro	Val	Leu	Asp	Leu	Arg	Arg	Pro	Pro	Ser	Asp	Leu				
				2115				2120				2125							
tac	ctc	cca	ccc	ccc	gac	cat	ggc	acc	cca	gcc	cgg	gga	tcc	ccc	cac		6432		
Tyr	Leu	Pro	Pro	Pro	Asp	His	Gly	Thr	Pro	Ala	Arg	Gly	Ser	Pro	His				
				2130				2135				2140							
agt	gaa	ggg	ggc	aaa	agg	tcc	cca	gaa	ccc	agc	aaa	aca	tcg	gtc	ctg		6480		
Ser	Glu	Gly	Gly	Lys	Arg	Ser	Pro	Glu	Pro	Ser	Lys	Thr	Ser	Val	Leu				
2145				2150				2155				2160							
ggc	agc	agt	gag	gat	gcc	att	gag	cct	gtg	tcc	cca	cca	gag	ggc	atg		6528		
Gly	Ser	Ser	Glu	Asp	Ala	Ile	Glu	Pro	Val	Ser	Pro	Pro	Glu	Gly	Met				
				2165				2170				2175							
act	gag	cca	gga	cat	gct	cgg	agc	gct	gtg	tac	cca	ctg	ctg	tat	cga		6576		
Thr	Glu	Pro	Gly	His	Ala	Arg	Ser	Ala	Val	Tyr	Pro	Leu	Leu	Tyr	Arg				
				2180				2185				2190							
gac	ggg	gaa	cag	ggc	gag	ccc	agg	atg	ggc	tct	aag	tct	cca	ggc	aac		6624		
Asp	Gly	Glu	Gln	Gly	Glu	Pro	Arg	Met	Gly	Ser	Lys	Ser	Pro	Gly	Asn				
				2195				2200				2205							
acc	agc	cag	ccg	cca	gcc	ttc	ttc	agt	aag	ctg	act	gag	agc	aac	tcc		6672		
Thr	Ser	Gln	Pro	Pro	Ala	Phe	Phe	Ser	Lys	Leu	Thr	Glu	Ser	Asn	Ser				
				2210				2215				2220							
gcc	atg	gtg	aag	tcg	aag	aag	cag	gag	atc	aac	aag	aaa	ctc	aac	acc		6720		
Ala	Met	Val	Lys	Ser	Lys	Lys	Gln	Glu	Ile	Asn	Lys	Lys	Leu	Asn	Thr				
2225				2230				2235				2240							
cac	aac	cgg	aac	gag	cca	gaa	tac	aat	att	ggc	cag	cct	ggg	acg	gaa		6768		
His	Asn	Arg	Asn	Glu	Pro	Glu	Tyr	Asn	Ile	Gly	Gln	Pro	Gly	Thr	Glu				
				2245				2250				2255							
atc	ttc	aac	atg	ccc	gcc	atc	act	gga	gca	ggc	ctt	atg	acc	tgt	aga		6816		
Ile	Phe	Asn	Met	Pro	Ala	Ile	Thr	Gly	Ala	Gly	Leu	Met	Thr	Cys	Arg				
				2260				2265				2270							
agc	cag	gcg	gtg	caa	gaa	cac	gcc	agc	acc	aac	atg	ggg	cta	gag	gcc		6864		
Ser	Gln	Ala	Val	Gln	Glu	His	Ala	Ser	Thr	Asn	Met	Gly	Le						

ccg	ccg	ctc	ggc	gcc	aat	gct	ttt	aac	cct	ctg	aat	gcc	agc	gcc	agt	6960
Pro	Pro	Leu	Gly	Ala	Asn	Ala	Phe	Asn	Pro	Leu	Asn	Ala	Ser	Ala	Ser	
2305					2310					2315					2320	
ctg	ccc	gct	gct	gct	atg	ccc	ata	acc	act	gct	gac	gga	cgg	agt	gac	7008
Leu	Pro	Ala	Ala	Ala	Met	Pro	Ile	Thr	Thr	Ala	Asp	Gly	Arg	Ser	Asp	
				2325					2330						2335	
cac	gca	ctc	acc	tcg	cca	ggg	gga	ggg	ggg	aaa	gcc	aag	gtc	tct	ggc	7056
His	Ala	Leu	Thr	Ser	Pro	Gly	Gly	Gly	Gly	Lys	Ala	Lys	Val	Ser	Gly	
			2340					2345					2350			
aga	cct	agc	agc	cga	aaa	gcc	aag	tcg	cca	gca	cca	ggc	cta	gcg	tcc	7104
Arg	Pro	Ser	Ser	Arg	Lys	Ala	Lys	Ser	Pro	Ala	Pro	Gly	Leu	Ala	Ser	
		2355					2360					2365				
gga	gac	cga	ccc	cct	tct	gtc	tcc	tca	gta	cac	tca	gag	ggg	gac	tgc	7152
Gly	Asp	Arg	Pro	Pro	Ser	Val	Ser	Ser	Val	His	Ser	Glu	Gly	Asp	Cys	
	2370					2375					2380					
aat	cgc	cga	aca	cca	ctc	acc	aac	cgt	gtg	tgg	gag	gac	cgg	ccc	tca	7200
Asn	Arg	Arg	Thr	Pro	Leu	Thr	Asn	Arg	Val	Trp	Glu	Asp	Arg	Pro	Ser	
2385					2390					2395					2400	
tct	gca	ggg	tcc	acg	cca	ttc	ccc	tac	aac	cct	ttg	att	atg	agg	cta	7248
Ser	Ala	Gly	Ser	Thr	Pro	Phe	Pro	Tyr	Asn	Pro	Leu	Ile	Met	Arg	Leu	
				2405					2410						2415	
cag	gca	ggg	gtc	atg	gcc	tcc	ccg	ccc	cca	cct	ggc	ctt	gcg	gca	ggc	7296
Gln	Ala	Gly	Val	Met	Ala	Ser	Pro	Pro	Pro	Pro	Gly	Leu	Ala	Ala	Gly	
			2420					2425					2430			
agc	ggg	ccc	cta	gct	ggg	ccc	cac	cac	gcc	tgg	gat	gag	gag	ccc	aag	7344
Ser	Gly	Pro	Leu	Ala	Gly	Pro	His	His	Ala	Trp	Asp	Glu	Glu	Pro	Lys	
		2435					2440					2445				
cca	ctg	ctg	tgt	tca	cag	tat	gag	aca	ctc	tcg	gac	agc	gag			7386
Pro	Leu	Leu	Cys	Ser	Gln	Tyr	Glu	Thr	Leu	Ser	Asp	Ser	Glu			
	2450					2455					2460					